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(54) **COMBINED SUITCASE AND COMBINING UNIT THEREOF**

(57) A suitcase (1) of the present invention includes first and second case shells (10) and (20) disposed opposite to each other, and a combining unit (30) disposed on two sides of the first and second case shells (10,20). The first case shell (10) has a first annular rim (13), and the second case shell (20) has a second annular rim (23). The combining unit (30) includes a first seamless annular member (31), a second seamless annular member (33), a first zipper unit (41) and a second zipper unit (42). The first and second seamless annular members (31,33) are detachably fastened to the first and second annular rims (13,23) respectively. An end of the first and second zipper units (41,42) are connected with the first and second seamless annular members (31,33) respectively, and the two zipper units (41,42) are capable of being meshed with each other. Through the above-described configuration design, the suitcase (1) is convenient for the replacement of the combining unit (30) thereof.

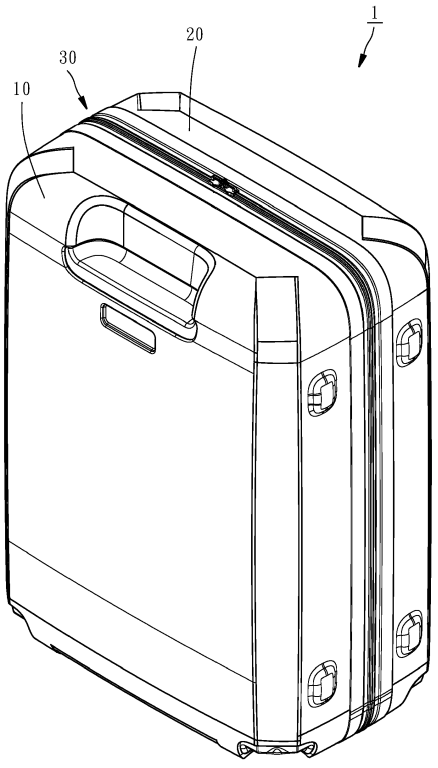

FIG. 1

EP 3 871 554 A1

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to suitcases and more particularly, to a combined suitcase which is easy for the replacement of the zipper thereof.

2. Description of the Related Art

[0002] The traditional suitcase structurally includes a first case shell, a second case shell and a zipper. The first case shell has a first rim. The second case shell has a second rim. The zipper is disposed between the first rim and the second rim for the user to open the first and second case shells by unzipping the zipper so that the user can take the belongings inside the suitcase.

[0003] After a long-term use of the traditional suitcase, the zipper thereof may be broken and thereby need replacement. However, the zipper of the traditional suitcase is fastened to the first and second case shells by sewing, and the edge of the zipper may be provided with glue to make the zipper glued to the first and second case shells more firmly. However, in the above-described case, the replacement of the zipper is quite time-consuming and inconvenient, so there is still room for improvement.

SUMMARY OF THE INVENTION

[0004] It is one of the objectives of the present invention to make improvement aimed at the defects of the conventional suitcases so as to provide a brand-new suitcase having an easily replaceable combining unit.

[0005] Therefore, the present invention provides a suitcase which includes a first case shell, a second case shell and a combining unit. The first case shell has a first shell wall, and a first accommodating space and a first annular rim, which are defined by the aforementioned first shell wall. The second case shell has a second shell wall, and a second accommodating space and a second annular rim, which are defined by the second shell wall. The combining unit includes a first seamless annular member, a second seamless annular member, a first zipper unit and a second zipper unit. The aforementioned first zipper unit has a first free end and a first zipper end. The aforementioned first free end is connected with an end of the first seamless annular member. The second zipper unit has a second free end and a second zipper end. The second free end is connected with the second seamless annular member, and the first zipper end and the second zipper end are capable of being meshed with each other. Another end of the aforementioned first seamless annular member is detachably fastened to the aforementioned first annular rim of the first case shell, and another end of the aforementioned second seamless annular member is detachably fastened to the aforementioned second annular rim of the second case shell.

[0006] As a result, when the combining unit of the suitcase, especially the first or second zipper unit, is broken, the maintenance worker can easily detach the whole combining unit from the first and second case shells and then reinstall a new combining unit to the first annular rim of the first case shell and the second annular rim of the second case shell, so that the maintenance of the suitcase is accomplished. The entire maintenance process is quite easy and efficient. Besides, when the combining unit of the suitcase is broken, the user only needs to replace the combining unit instead of buying a new suitcase, so it is money-saving for the user of the suitcase.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The structural details, features, manner of assembly or usage of the suitcase of the present invention will be specified in the following embodiment. However, it should be understood that the following embodiment and the accompanying drawings are given by way of illustration only, and thus are not limitative of the present invention, and wherein:

FIG. 1 is a perspective view of a suitcase according to the embodiment;
FIG. 2 is an exploded view of FIG. 1;
FIG. 3 is an enlarged perspective view of a combining unit according to the embodiment;
FIG. 4 is a partially cut-away perspective view of FIG. 1, but not showing a first case shell; and
FIG. 5 and FIG. 6 are partially sectional views of FIG. 1 taken at different positions.

DETAILED DESCRIPTION OF THE INVENTION

[0008] The technique and features of the present invention will be specified in the following instanced embodiment and the appendix drawings. The directional terms mentioned in the contents of the specification, such as 'upper', 'lower', 'inner', 'outer' 'top' and 'bottom', are just for illustrative description on the basis of normal usage direction, not intended to limit the claimed scope.

[0009] The following embodiment and the appendix drawings are taken as an instance for the detailed description of the technical features of the present invention.

[0010] As shown in FIG. 1, a suitcase 1 provided by the embodiment includes a first case shell 10 and a second case shell 20, which are disposed opposite to each other, and a combining unit 30.

[0011] As shown in FIG. 2, the first case shell 10 and the second case shell 20 are approximately identical to each other in structure. The first case shell 10 structurally has a first shell wall 11, and a first accommodating space 12 and a first annular rim 13, which are defined by the first shell wall 11. The second case shell 20 has a second

shell wall 21, and a second accommodating space 22 and a second annular rim 23, which are defined by the second shell wall 21. The first accommodating space 12 and the second accommodating space 22 are adapted to accommodate the belongings of the user. In normal condition, the first shell wall 11 and the second shell wall 21 are provided at the bottoms thereof with a wheel set (not shown) for the support of the suitcase 1. In this embodiment, the first case shell 10 is further provided with a handle (not shown) for the user to draw the suitcase 1. The first case shell 10 and the second case shell 20 are both provided at intervals with a plurality of positioning holes 14 and 24 near the first annular rim 13 and the second annular rim 23.

[0012] Referring to FIGS. 3-5, the combining unit 30 is annular-shaped and structurally includes a first seamless annular member 31, a second seamless annular member 33, a first zipper unit 41 and a second zipper unit 42. As shown in FIGS. 4-6, the first seamless annular member 31 is located adjacent to the second seamless annular member 33 and a slit S is provided between the first seamless annular member 31 and the second seamless annular member 33. The first zipper unit 41 has a first free end 411 and a first zipper end 412 opposite to each other. The second zipper unit 42 has a second free end 421 and a second zipper end 422 opposite to each other. On the directional basis of FIG. 5, the first seamless annular member 31 is provided at the left and right sides thereof with a first embedding portion 32 and a first connecting band 311 respectively, and the second seamless annular member 33 is provided at the right and left sides thereof with a second embedding portion 34 and a second connecting band 331 respectively. Referring to FIGS. 4-5, the first connecting band 311 is located adjacent to the first embedding portion 32, and the second connecting band 331 is located adjacent to the second embedding portion 34. Specifically speaking, as shown in FIG. 5, the first embedding portion 32 and the second embedding portion 34 both have an inner wall 35, an outer wall 36 and an inserting groove 37 defined between the outer wall 36 and the inner wall 35. The first annular rim 13 of the first case shell 10 is embedded in the inserting groove 37 of the first embedding portion 32, and the second annular rim 23 of the second case shell 20 is embedded in the inserting groove 37 of the second embedding portion 34. The first embedding portion 32 completely surrounds the first annular rim 13, and the second embedding portion 34 completely surrounds the second annular rim 23, as shown in FIG. 4. Because the first and second seamless annular members 31,33 completely surrounds the first and second annular rims 13,23 by the embedding portions 32 and 34 respectively, the overall structural strength of the suitcase 1 is relatively higher and the combining unit 30 is uneasy to separate from the first case shell 10 and the second case shell 20. The width of the outer wall 36 is smaller than the width of the inner wall 35. The inner walls 35 are provided with a plurality of notches 39. The outer walls 36 are slightly flexible and can be slightly deformed elastically by an external force. The inner surfaces of the outer walls 36 are provided with positioning columns 38 of equal amount to the notches 39. Each positioning column 38 is provided at the terminal end thereof with a threaded hole 381. Each positioning column 38 inwardly protrudes toward corresponding one of the notches 39 and passes through corresponding one of the positioning holes 14 and 24. In this way, the combining unit 30 can be detachably fastened to the first annular rim 13 of the first case shell 10 and the second annular rim 23 of the second case shell 20 by the first seamless annular member 31 and the second seamless annular member 33 respectively. Besides, through the cooperation of the positioning holes 14 and 24 of the first case shell 10 and the second case shell 20 with the positioning columns 38 of the first seamless annular member 31 and the second seamless annular member 33, the first case shell 10 and the second case shell 20 can be precisely positioned as shown in FIGS. 4 and 6, and the maintenance worker can fasten the first seamless annular member 31 and the second seamless annular member 33 to the first case shell 10 and the second case shell 20 respectively in a screwing manner. The first zipper unit 41 has the opposite first free end 411 and first zipper end 412, and the second zipper unit 42 has the opposite second free end 421 and second zipper end 422. The first free end 411 is glued to the first connecting band 311 of the first seamless annular member 31. The first zipper end 412 is provided with a row of zipper teeth. The second free end 421 is glued to the second connecting band 331 of the second seamless annular member 33. The second zipper end 422 is provided with another row of zipper teeth. There is a zipper slider 43 disposed between the two rows of zipper teeth. Through the zipper slider 43, the first and second zipper ends 412,422 of the first zipper unit 41 and the second zipper unit 42 can be meshed with each other or separated from each other. The border B between the first zipper unit 41 and the second zipper unit 42, i.e. where the zipper teeth are meshed with each other, is located correspondingly to the slit S. The size of the slit S may become larger or smaller with the extent, to which the first case shell 10 and the second case shell 20 are opened. Besides, the combining unit 30 of the suitcase 1 further includes a third zipper unit 44 and a fourth zipper unit 45. The first zipper unit 41 and the third zipper unit 44 are located on two opposite sides of the first connecting band 311 respectively. The second zipper unit 42 and the fourth zipper unit 45 are located on two opposite sides of the second connecting band 331 respectively. The first zipper unit 41, the first connecting band 311 and the third zipper unit 44 are sewed together. The second zipper unit 42, the second connecting band 331 and the fourth zipper unit 45 are also sewed together. In this way, the first and second zipper units 41,42 are fastened more firmly, and the third and fourth zipper units 44 and 45 can be meshed with zipper teeth of lining cloths (not shown) in the follow-up process.

[0013] It is worthy of mention that the first seamless annular member 31 and the second seamless annular member 33 in this embodiment may be made of polypropylene (PP), polycarbonate (PC), acrylonitrile butadiene styrene (ABS) or nylon, for providing the whole combining unit 30 sufficient structural strength and the convenience of sewing each zipper unit 41, 42, 44 or 45 on the first connecting band 311 or the second connecting band 331. It should be additionally remarked that the words "detachably fastened" mentioned in this embodiment means in the process of fastening the first seamless annular member 31 to the first case shell 10 or detaching the first seamless annular member 31 from the first case shell 10, neither the first case shell 10 nor the first seamless annular member 31 should be broken; likewise, in the process of fastening the second seamless annular member 33 to the second case shell 20 or detaching the second seamless annular member 33 from the second case shell 20, neither the second case shell 20 nor the second seamless annular member 33 should be broken. For example, if the first seamless annular member 31 is fastened to the first case shell 10 by sewing, there will be holes created on the first case shell 10; or, if the first seamless annular member 31 is fastened to the first case shell 10 by gluing, the first case shell 10 or the first seamless annular member 31 may be damaged in the detachment process.

[0014] Under practical usage condition, when the combining unit 30 of the suitcase 1, especially the first or second zipper unit 41 or 42, is broken, the maintenance worker or the user of the suitcase 1 can easily detach the combining unit 30 from the first and second case shells 10,20 by firstly loosening the screw on each positioning column 38 and then applying a force to the positioning columns 38 to separate the positioning columns 38 from the first case shell 10 or the second case shell 20. After that, the maintenance worker can fasten a new combining unit to the first annular rim 13 of the first case shell 10 and the second annular rim 23 of the second case shell 20, so that the maintenance of the suitcase 1 is accomplished. The entire maintenance process is quite easy and efficient. Besides, when the combining unit 30 of the suitcase 1 is broken, the user only needs to replace the combining unit 30 instead of buying a new suitcase 1, so it is money-saving for the user of the suitcase 1.

[0015] The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.

Claims

1. A combined suitcase (1) being characteristic in that, the combined suitcase (1) comprises:
   a first case shell (10) having a first shell wall (11), and a first accommodating space (12) and a first annular rim (13), which are defined by the first shell wall (11);
   a second case shell (20) having a second shell wall (21), and a second accommodating space (22) and a second annular rim (23), which are defined by the second shell wall (21); and
   a combining unit (30) comprising a first seamless annular member (31), a second seamless annular member (33), a first zipper unit (41) and a second zipper unit (42), the first zipper unit (41) having a first free end (411) and a first zipper end (412), the first free end (411) being connected with an end of the first seamless annular member (31), the second zipper unit (42) having a second free end (421) and a second zipper end (422), the second free end (421) being connected with an end of the second seamless annular member (33), the first zipper end (412) and the second zipper end (422) being capable of being meshed with each other, another end of the first seamless annular member (31) being detachably fastened to the first annular rim (13) of the first case shell (10), another end of the second seamless annular member (33) being detachably fastened to the second annular rim (23) of the second case shell (20).

2. The combined suitcase (1) as claimed in claim 1, wherein the first seamless annular member (31) is provided with a first embedding portion (32); the second seamless annular member (33) is provided with a second embedding portion (34); the first annular rim (13) of the first case shell (10) is embedded in the first embedding portion (32); the second annular rim (23) of the second case shell (20) is embedded in the second embedding portion (34).

3. The combined suitcase (1) as claimed in claim 2, wherein the first embedding portion (32) completely surrounds the first annular rim (13), and the second embedding portion (34) completely surrounds the second annular rim (23).

4. The combined suitcase (1) as claimed in claim 2, wherein the first embedding portion (32) and the second embedding portion (34) both have an outer wall (36), an inner wall (35) and an inserting groove (37) defined between the outer wall (36) and the inner wall (35); the inner walls (35) of the first embedding portion (32) and the second embedding portion (34) are provided with a plurality of notches (39), and inner surfaces of the outer walls (36) of the first embedding portion (32) and the second embedding portion (34) are provided with a plurality of positioning columns (38); the positioning columns (38) are arranged correspondingly to the notches (39) respec-

tively; the first case shell (10) is provided with a plurality of positioning holes (14) and (24); each of the positioning columns (38) protrudes toward corresponding one of the notches (39) and passes through corresponding one of the positioning holes (14) and (24).

5. The combined suitcase (1) as claimed in claim 4, wherein each of the positioning columns (38) is provided with a threaded hole (381).

6. The combined suitcase (1) as claimed in claim 1, wherein the first seamless annular member (31) has a first embedding portion (32) and a first connecting band (311); the second seamless annular member (33) has a second embedding portion (34) and a second connecting band (331); the first embedding portion (32) is located adjacent to the first connecting band (311); the second embedding portion (34) is located adjacent to the second connecting band (331); the first free end (411) of the first zipper unit (41) is connected with the first connecting band (311); the second free end (421) of the second zipper unit (42) is connected with the second connecting band (331).

7. The combined suitcase (1) as claimed in claim 6, wherein the combining unit (30) further comprises a third zipper unit (44) and a fourth zipper unit (45); the third zipper unit (44) is connected with the first connecting band (311), and the first zipper unit (41) and the third zipper unit (44) are located on two opposite sides of the first connecting band (311) respectively; the fourth zipper unit (45) is connected with the second connecting band (331), and the second zipper unit (42) and the fourth zipper unit (45) are located on two opposite sides of the second connecting band (331) respectively.

8. A combining unit (30) comprising a first seamless annular member (31), a second seamless annular member (33), a first zipper unit (41) and a second zipper unit (42), the first seamless annular member (31) being located adjacent to the second seamless annular member (33) and a slit (S) being provided between the first seamless annular member (31) and the second seamless annular member (33), the first zipper unit (41) having a first free end (411) and a first zipper end (412), the first free end (411) being connected with an end of the first seamless annular member (31), the second zipper unit (42) having a second free end (421) and a second zipper end (422), the second free end (421) being connected with an end of the second seamless annular member (33), the first zipper end (412) and the second zipper end (422) being capable of being meshed with each other, the first zipper end (412) and the second zipper end (422) being located correspondingly to the slit (S).

9. The combining unit (30) as claimed in claim 8, wherein the first seamless annular member (31) has a first embedding portion (32) and a first connecting band (311); the second seamless annular member (33) has a second embedding portion (34) and a second connecting band (331); the first embedding portion (32) is located adjacent to the first connecting band (311); the second embedding portion (34) is located adjacent to the second connecting band (331); the first free end (411) of the first zipper unit (41) and the second free end (421) of the second zipper unit (42) are connected with the first connecting band (311) and the second connecting band (331) respectively; the first embedding portion (32) and the second embedding portion (34) both have an outer wall (36), an inner wall (35) and an inserting groove (37) defined between the outer wall and the inner wall (35).

10. The combining unit (30) as claimed in claim 9, wherein the inner walls (35) of the first embedding portion (32) and the second embedding portion (34) are both provided with a plurality of notches (39); inner surfaces of the outer walls (36) of the first embedding portion (32) and the second embedding portion (34) are provided with a plurality of positioning columns (38); the positioning columns (38) are arranged correspondingly to the notches (39) respectively.

FIG. 1

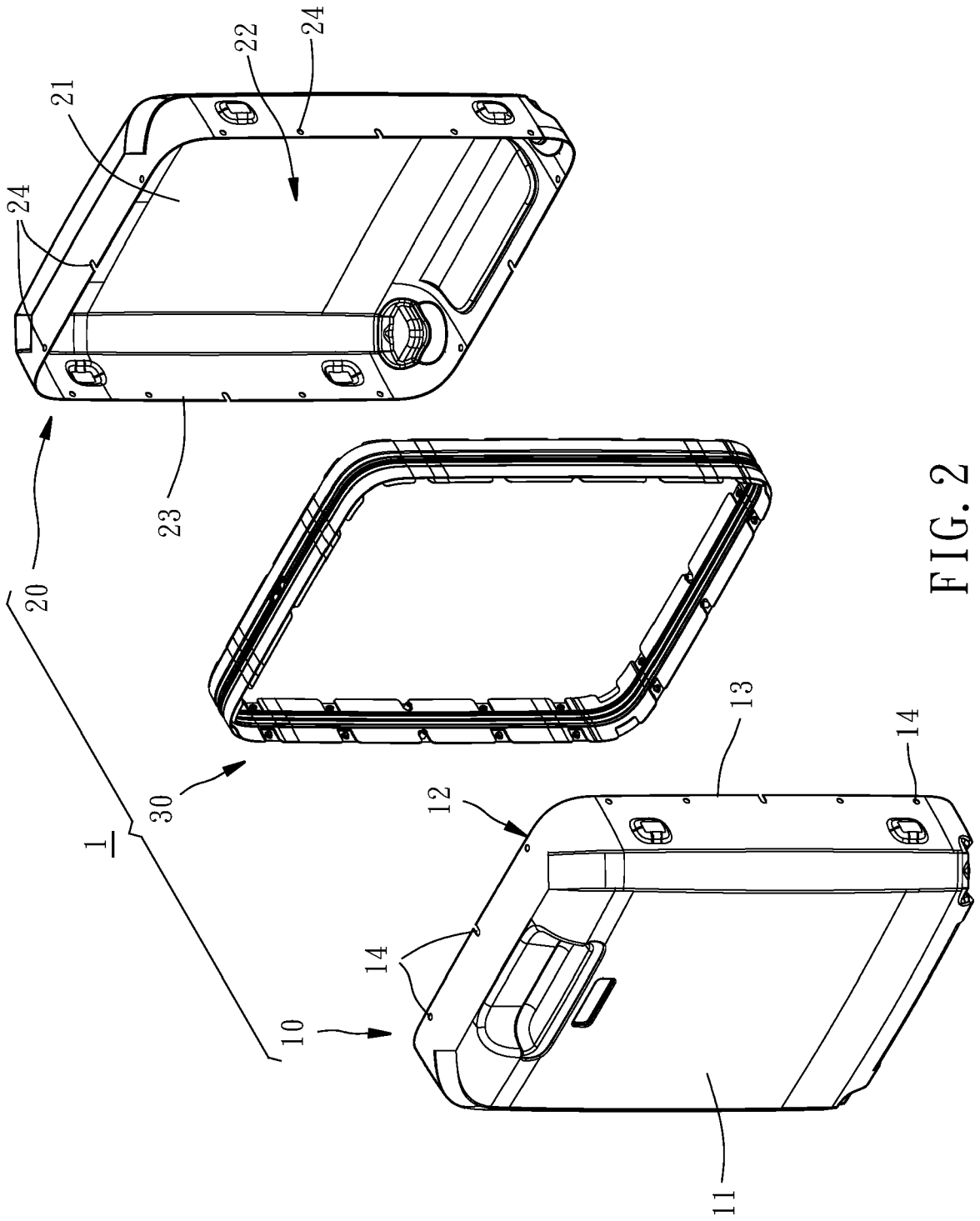

FIG. 2

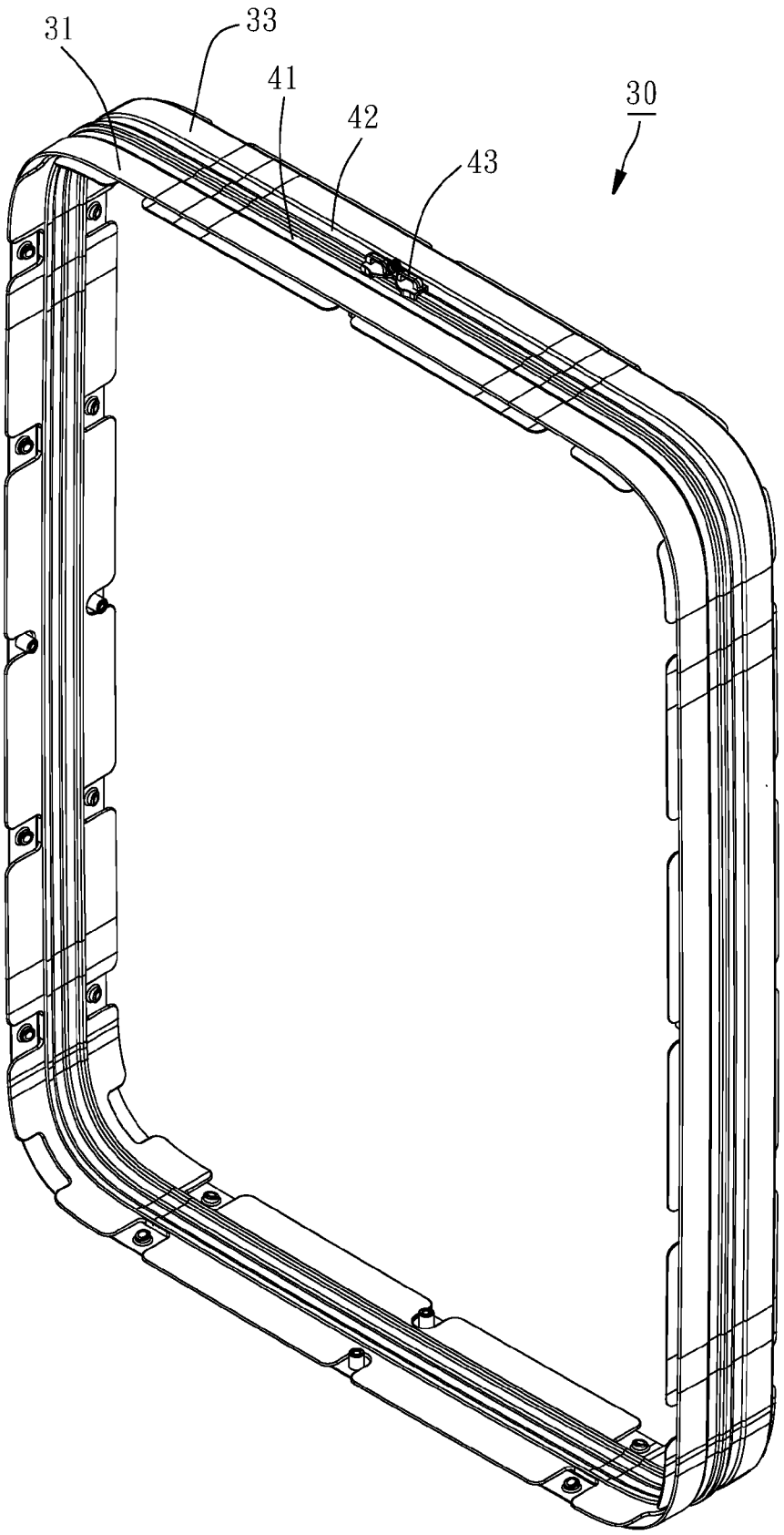

FIG. 3

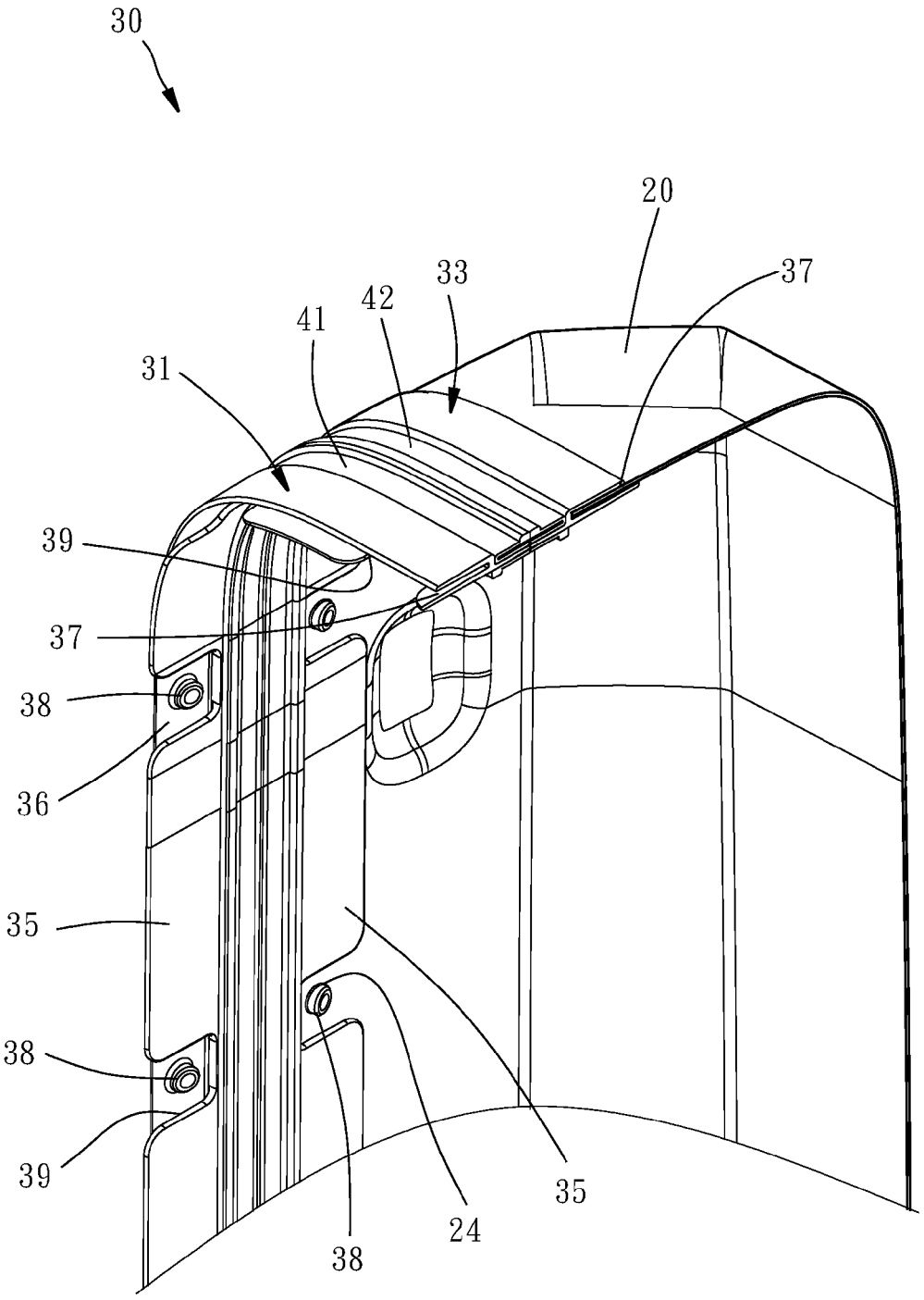

FIG. 4

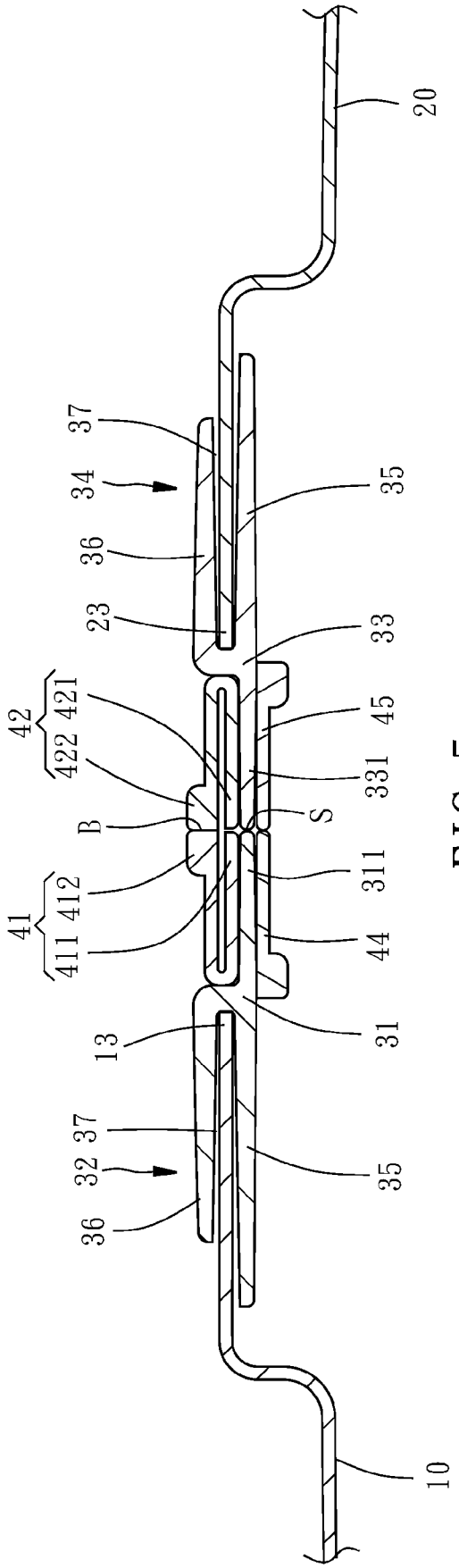
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FIG. 5

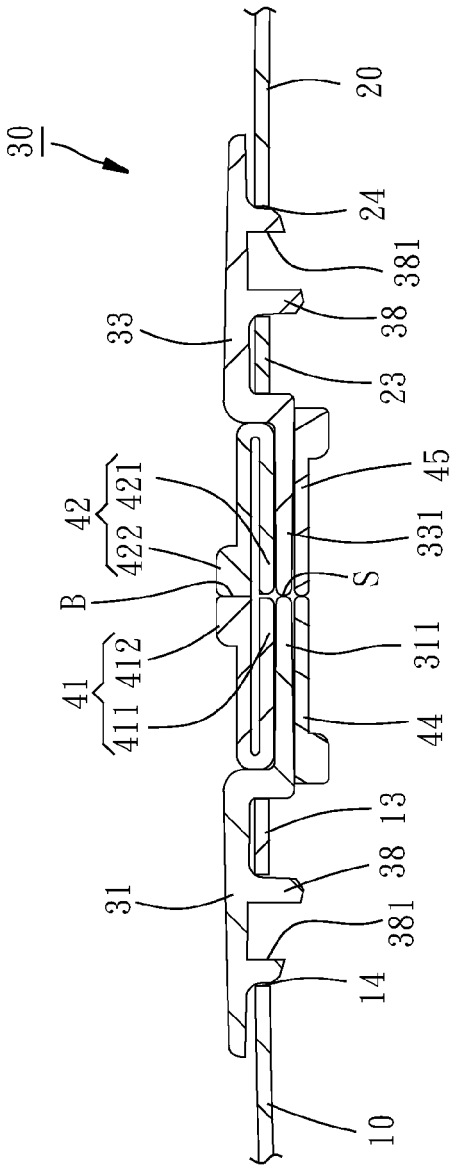
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FIG. 6

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EUROPEAN SEARCH REPORT

Application Number
EP 20 17 4038

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	* paragraph [0025] - paragraph [0029]; figures *	6,7,9,10	
A	EP 2 374 366 A1 (C & C LUGGAGE MFG CO LTD [CN]) 12 October 2011 (2011-10-12) * paragraph [0009] - paragraph [0014]; figures *	1-10	

TECHNICAL FIELDS SEARCHED (IPC)
A45C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	14 October 2020	van de Beek-Duijker

CATEGORY OF CITED DOCUMENTS

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14-10-2020

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